

XAL Status Report Spring 2009

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EPICS Collaboration Meeting

April 30 to May 2, 2009

Vancouver, Canada



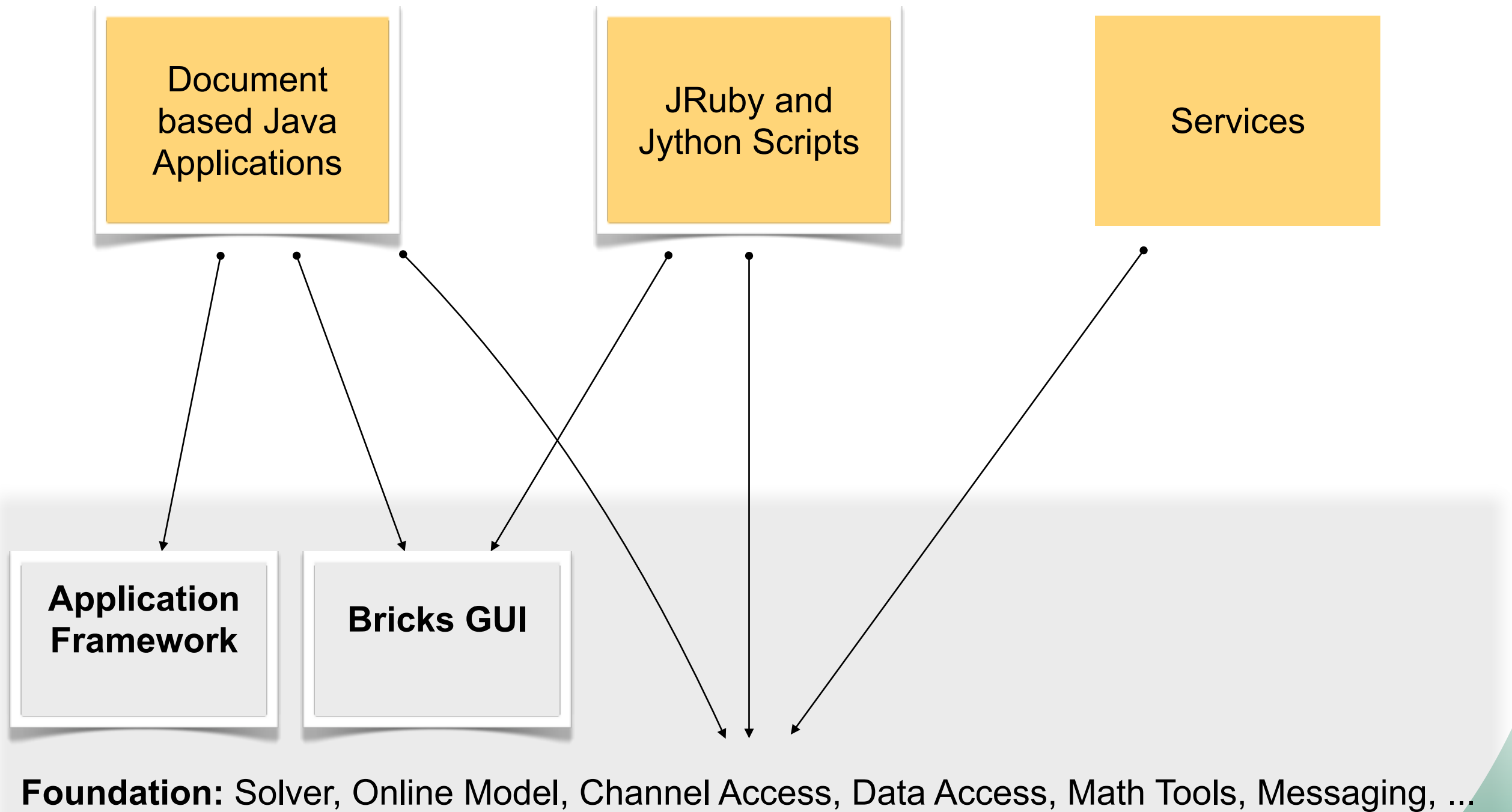
Active Developers at SNS

- **Chris Allen**
- **Delphy Nypaver Armstrong**
- **Sarah Cousineau**
- **John Galambos**
- **Tom Pelaia**
- **Andrei Shishlo**
- **Yan Zhang**
- **Alexander Zhukov**

What is XAL?

- **Development environment for creating accelerator physics applications, scripts and services**
 - Control room applications
 - Analysis applications
- **Application framework**
- **Toolbox of Java packages**
- **Ant based build system (independent of IDE)**
- **Developed initially for the Spallation Neutron Source (SNS)**
- **Used in commissioning and running SNS**

XAL Architecture



Current Statistics

- **More than five dozen applications**
- **Three services**
- **Several scripts**
 - **many have user interfaces**

Growing Collaboration

- Home: <http://www.ornl.gov/~t6p/Main/XAL.html>
- Source Forge Project: [xaldev](http://sourceforge.net/projects/xaldev)
 - <http://sourceforge.net/projects/xaldev>
 - Source code managed using Subversion
- Dozens of developers among several sites
 - SNS, SLAC, JPARC and others interested
 - Paul Chu ([SLAC](#)) has been actively contributing to the SNS source code
 - GANIL, MSU/RIA, TRIUMF evaluating XAL
- **Contact us** to participate

FY 2009 Plan

http://www.ornl.gov/~t6p/Main/XALBlog/Entries/2008/8/26_XAL_Enhancement_Activity.html

- ✓ Reduce and document third party jar files
- ✓ Remove proprietary charting packages
- Improve and enhance the online model
- ✓ Remove deprecated applications and code
- ✓ Fix broken Javadoc documentation
- Provide an XAL Lite branch
- ✓ Provide better online documentation
- Improve application launcher
- Build an agent based system

✓: complete, •: to do

Reduce and document third party jar files; Remove proprietary charting packages

- **Number one obstacle to adopting XAL**
- **Eliminated half of the third party jars**
- **Eliminated proprietary charting packages**
- **Obtained permission from some vendors to redistribute their jar files along with XAL**
- **Improved documentation of the third party jars**

Remove deprecated applications and code

- **Removed deprecated applications**
 - JERI, XIO, Loss Viewer, Charts, Orbit Display, SCL AFF Monitor, MPS Post Mort
- **Removed deprecated files and code**
 - Application File Chooser Factory
 - gov.sns.tools.samples.widgets
 - UML files
- **Ongoing effort to reduce and cleanup code**

Fix broken Javadoc documentation

- **Corrected hundreds of Java Doc errors**
- **Ongoing effort to fix remaining errors**

Provide better online documentation

- **Published a Quick Start Guide**
 - <http://www.ornl.gov/~t6p/Main/XALQuickStart.html>
 - checkout, configure, build, run
- **Maintain Java Doc**
- **Maintain Xcode indexed Documentation Set**

Synchronizing SNS XAL Repository to Source Forge xaldev Repository

- **We regularly push SNS modifications to the main branch of the Source Forge xaldev repository**
- **We still need to develop a strategy for collaboratively sharing the xaldev repository**

Support for Software Types

New Feature

- Previously, a node type mapped to a single node subclass
- Now, a node type along with a software type map to a single node subclass
 - Accommodates API variations and migration across devices of the same device type
 - Introduces **optional** softType attribute for devices in the implementation mapping file
 - Backward compatible
 - Wire Scanner (“WS”) type is an implementation

Key Value Access

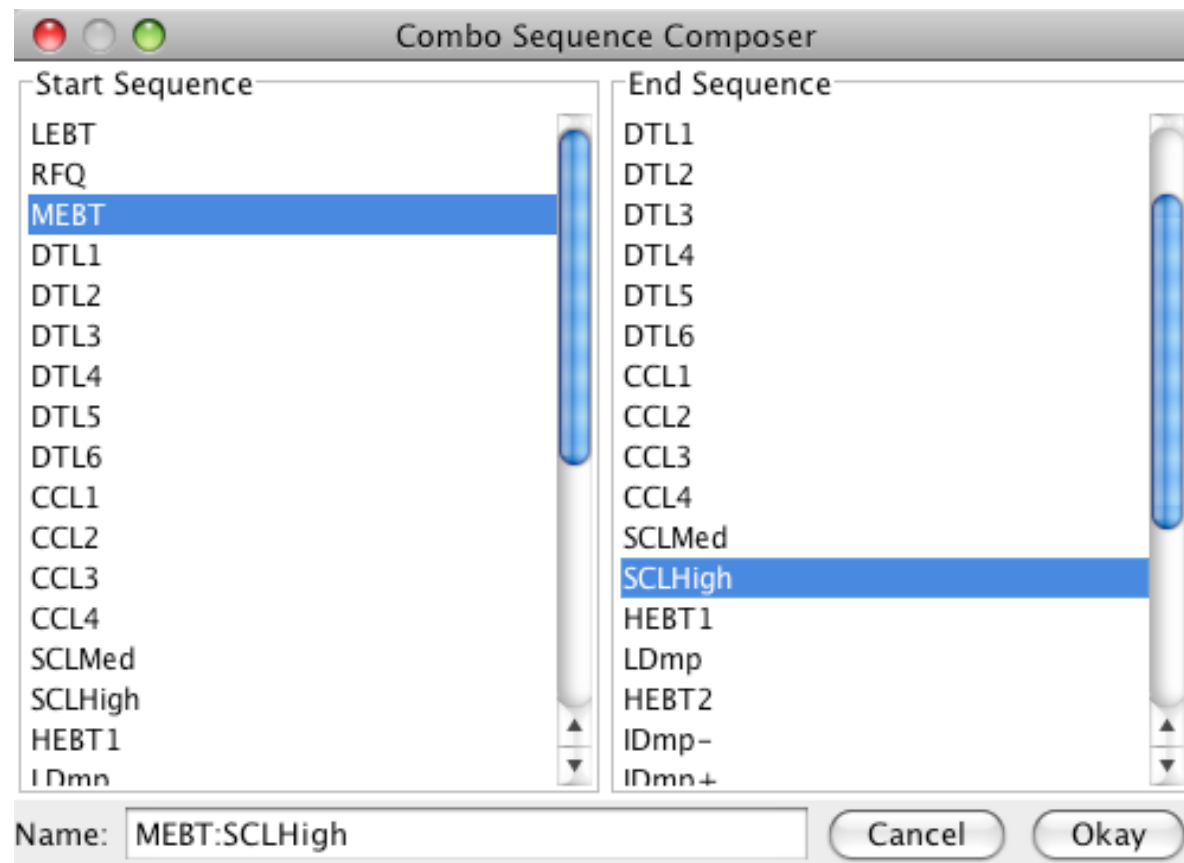
New Feature

- **KeyValueAdaptor provides access to an object's value corresponding to a key path identifying a method chain**
 - Caches accessor methods dynamically as needed for performance
 - Allows method calls by name
- **KeyValueTableModel allows for convenient, dynamic construction of a table model**
 - List of objects provide the table rows
 - Array of key paths specify table columns
 - Cell data retrieved using Key Value Adaptor
 - Very flexible

Combo Sequence Composer

New Feature

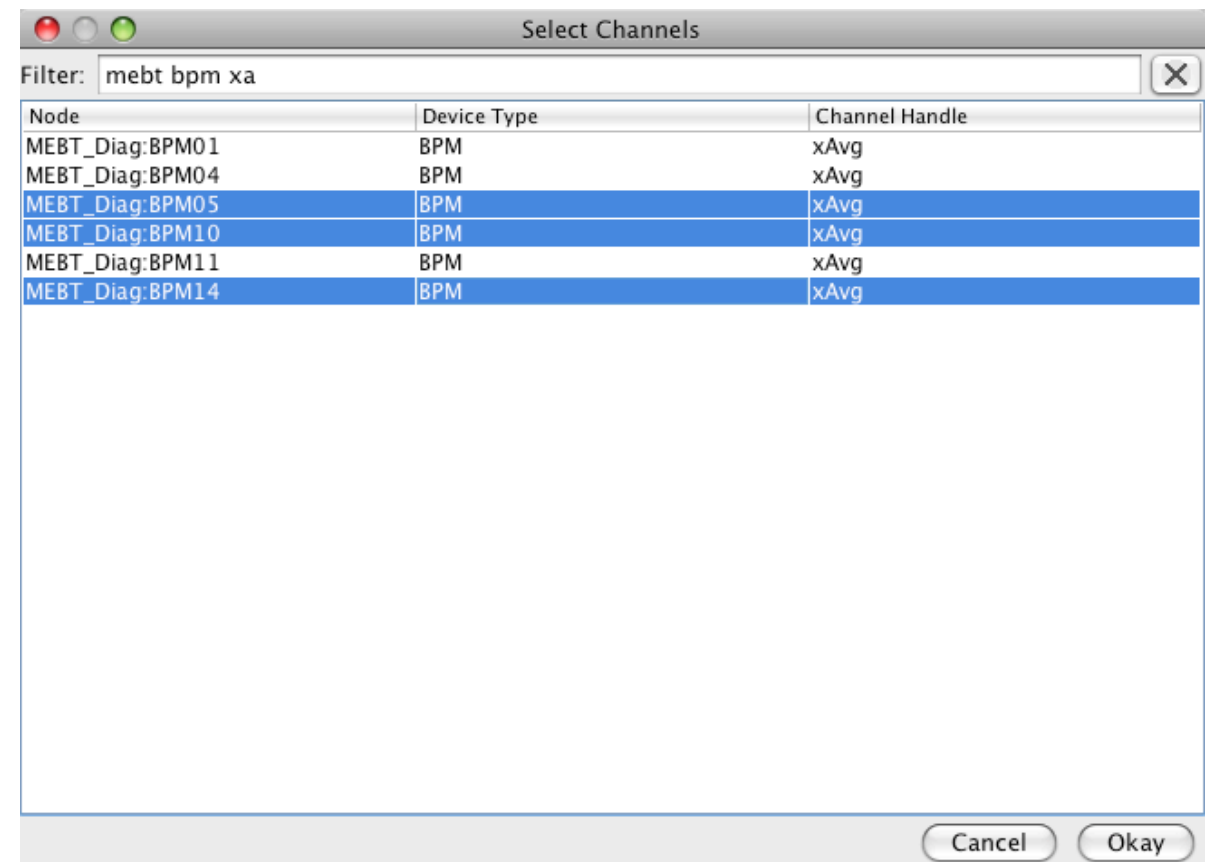
- User can combine sequences into combo sequence
- Offers a streamlined replacement of the cumbersome, deprecated SeqSelector
 - User only has to provide the start and end sequences
 - User gets immediate feedback whether the start and end sequences can be combined



Node Channel Selector

New Feature

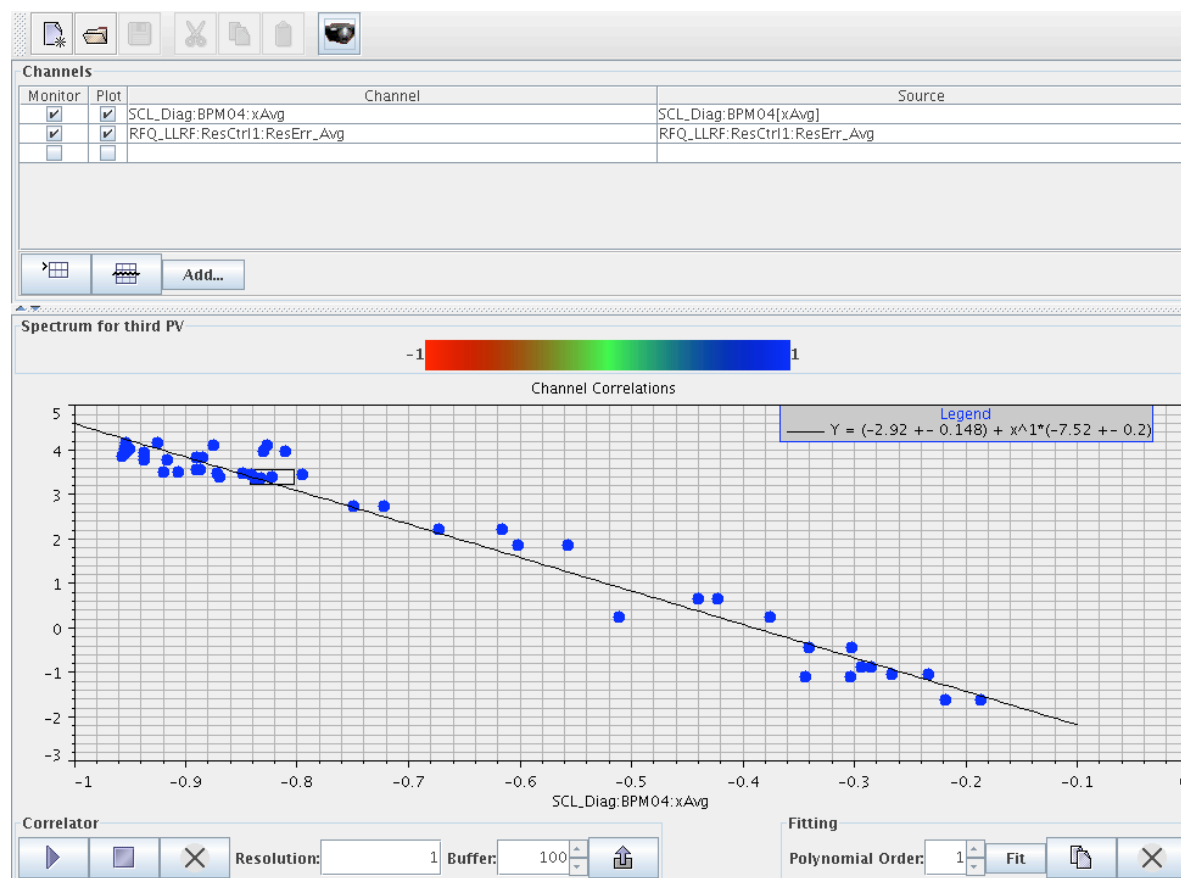
- **Nodes channels displayed in flat table**
 - no cumbersome tree hierarchy
 - displays node name, node type, channel handle
- **Quick node selection**
 - type parts of record to filter table of channels
 - double click to quickly select a single channel
 - allows multiple selection



XYZ Correlator

New Features

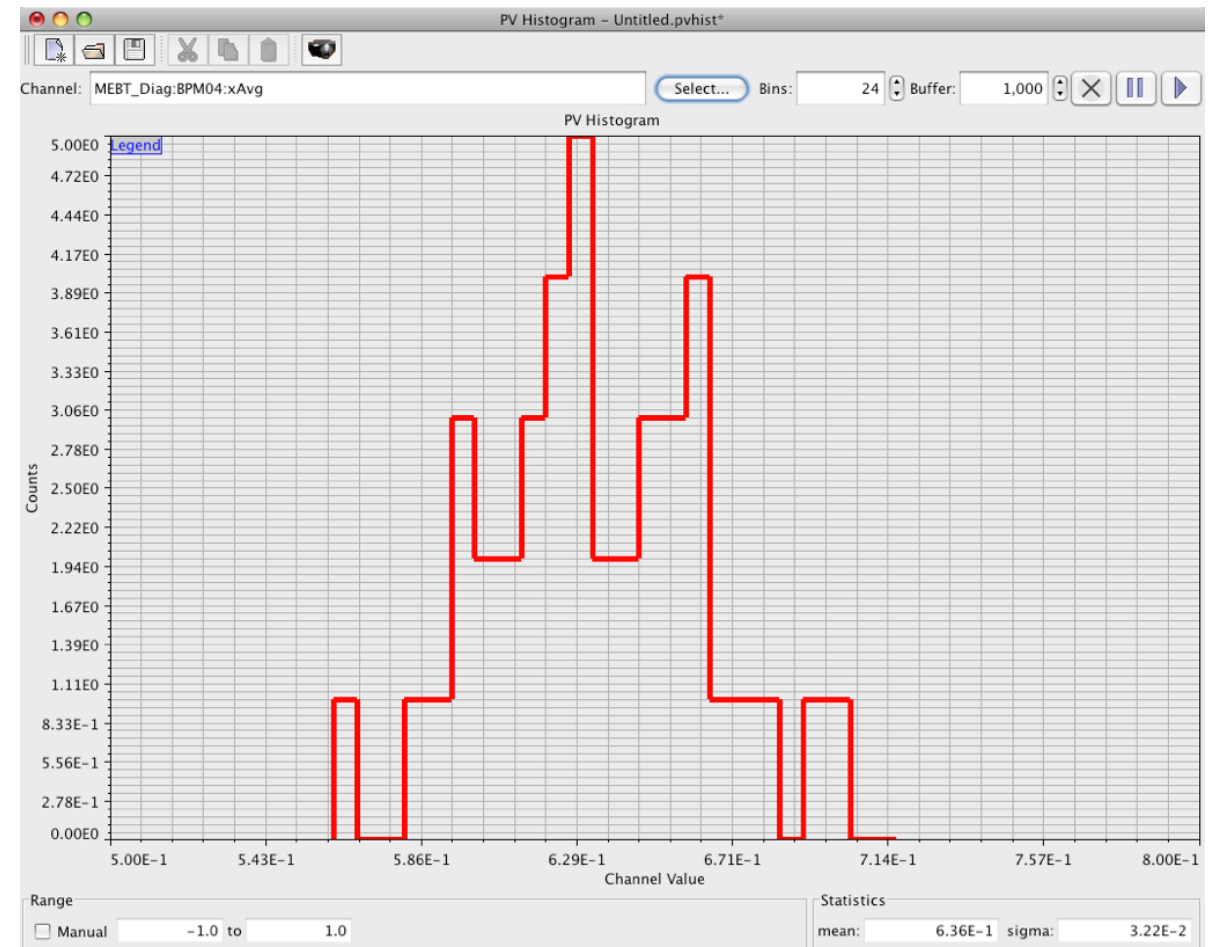
- Migrated charts from proprietary to XAL
- Improved fitting
- Correlate arbitrary number of PVs and dump the buffer to a file
- Quick selection of XAL channels
- Bricks user interface



PV Histogram

New Application

- Monitors a single channel
- Plots a histogram of the value
- Automatic or custom range
- Simple statistics



Resources

- **Home:** <http://www.ornl.gov/~t6p/Main/XAL.html>
- **News Feed:** <http://www.ornl.gov/~t6p/Main/XALBlog/XALBlog.html>
- **Open Source Code:** <http://sourceforge.net/projects/xaldev>